

Code No: **R42039****R10****Set No. 1****IV B.Tech II Semester Supplementary Examinations, April/May - 2017****POWER PLANT ENGINEERING****(Mechanical Engineering)****Time: 3 hours****Max. Marks: 75****Answer any FIVE Questions****All Questions carry equal marks**

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- 1 a) What are the basic resources in India for power generation? List out their capacities in different regions.  
b) What are the basic coal ingredients? Explain their effects on furnace design.
- 2 a) With a neat sketch explain the working of electrostatic precipitator and discuss its advantages and disadvantages.  
b) Why feed water treatment is necessary before supplying to the boiler? Discuss the effects of impurities in feed water on the boiler.
- 3 a) Why the starting of diesel plant is considered more difficult? What are the methods used for starting diesel engines? Which method is more commonly used and why?  
b) With a neat sketch explain the working of open cycle and closed cycle power plants.
- 4 a) Write the advantages and disadvantages of hydroelectric power plant.  
b) Draw a neat sketch of storage type hydro electric power plant and describe the function of each component used in the plant.
- 5 a) With a neat sketch explain the working of simple nuclear power plant.  
b) What do you understand by breeding? What factors control breeding? Explain.
- 6 a) Write the advantages of combined working of power plants.  
b) Discuss the working of run-off river plant in combination with steam plant.
- 7 a) With a neat sketch explain how CO<sub>2</sub> in flue gases is measured.  
b) Explain different methods employed to reduce nuclear pollution.
- 8 a) The peak load on a power station is 40MW. The loads having maximum demand s of 12MW,10MW,5MW and 9MW are connected to the power station. The capacity of the power station is 45MW and annual load factor is 50%. Find  
(i) Average load on the power station      (ii) Energy supplied per year  
(iii) Demand factor      (iv) Diversity factor.  
b) Discuss about the major sources of air pollution.